

68-2928/2

misc-5

DD/S&amp;T# 2684-68

9 July 1968

Mr. T. V. Learson, President  
IBM Corporation  
Armonk, New York 10504

Dear Mr. Learson:

The enclosed note was prepared in response to a query from my office as to why our software maintenance and systems programming costs for IBM 360 equipment continue to rise after more than three years of experience, particularly in light of a history of excellent IBM support on earlier equipment generations. This evaluation is a serious and conscientious attempt to assess our current situation as a large user of IBM equipment and as an organization committed to the System 360 concept and to suggest some means for restoring our confidence in your continuous support. I believe you will find it of interest.

Our people recently discussed some of these matter with Mr. Joseph M. Fox. He provided a briefing on the quality controls embedded in operating systems releases and gave us an opportunity to test new generations of operating systems using unclassified Agency data.

I am sufficiently concerned about a joint resolution of our difficulty that I have asked our Deputy Director for Science and Technology, Mr. Carl Duckett, to go to New York with one of his senior data processing managers to discuss the matter with you or your designated representative at a mutually convenient time. Mr. Duckett may be reached on [redacted]

Sincerely,

L. K. White  
Executive Director

Enclosure

DD/S&T  
FILE COPY

25X

PPB/IPS/LWS and OCS/WDC:cap (8 July 68)

Rewritten: ExDir:sbo

Distribution:

- 0 - Adse w/att
- 1 - ExDir w/o att
- 1 - ER w/att
- ~~2~~ - OCS w/att (1-DD/54T)
- 1 - OPPB/IPS subj w/att
- 1 - OPPB/IPS chrono w/att

LIFE COBA  
DD/281

Jul 9 1 53 PM '68

Mr. T. V. Learson, President  
IBM Corporation  
Armonk, New York 10504

Dear Mr. Learson:

The attached note was prepared in response to a query from my office as to why our software maintenance and systems programming costs for IBM 360 equipment continue to rise after more than three years' experience, particularly in light of a history of excellent IBM support on earlier equipment generations. I thought that you might be as interested as I in this evaluation of your product.

Our people have had a recent opportunity to discuss some of these matters with Mr. Joseph M. Fox who provided (1) a briefing on the quality controls embedded in operating system releases, and (2) an opportunity to test new generations of operating system using unclassified Agency data. We appreciate his interest in our problem.

I believe that the attached note is a serious and conscientious attempt to assess our current situation as a larger user of IBM equipment and as an organization committed to the System 360 concept and to suggest some means for restoring our confidence and that of others in your continuous support.

I am sufficiently concerned about a joint resolution of our difficulty that I have asked our Deputy Director for Science and Technology, Mr. Carl Duckett  to go to New York with one of his senior data processing managers to discuss the matter with you or your designated representative at a mutually convenient time.

Sincerely,

L. K. White  
Executive Director-Comptroller

Enclosure

25X

**Distribution:**

**Orig & 1 - Addressee w/att**

1 - ExDir w/att

1 - ER w/att

2 - DDS&T, OCS w/att

1 - OPPB/IPS sj w/att

1 - OPPB/IPS chrono w/att

25X1

OPPB/IPS/[ ] DDS&T/OCS/[ ] (8 July 68)

25X

### Problems with OS 360

This Agency has a large investment in IBM System 360 hardware, application programming, and training. In one area this investment is much larger than we bargained for--maintenance of Operating System/360. Our experience with OS has been most painful. Although this may be a common complaint, it takes on special meaning in our case. Our applications range across an exceedingly wide spectrum of the EDP art, most of which we would like to believe could operate successfully under the integrated environment of OS. In a sense, the 360 architecture and software design is tailor-made for us because it could provide the generality we need-at some cost to optimal performance in any one area, a cost we are willing to accept if reasonable.

A listing of problems we have had is almost endless, but our basic complaints boil down to three. The pace of new releases is too fast for us to absorb with reasonable system programming manpower. The motivation to ride this treadmill is strong but not very appealing.

- A new release will provide some new facilities (many of which should have been available earlier).
- A new release will give better performance from already available facilities. ( In many cases prior performance was so poor that any change looks like a major improvement.)
- A new release will correct earlier errors (which should have been detected and corrected prior to initial release).
- IBM will cease to support release n after release n + 2 is available (which completes the carrot and stick approach).

There is little evidence of quality control in IBM software production. Many Program Temporary Fixes (PTFs) are published at the same time as the system is released and have to be applied at the customer's site.

There is little evidence that quality control has improved. We still see the most obvious errors (e. g., the inability to cope with abnormal job termination situations) as part of a new release, errors which almost any test could hardly fail to detect. The IBM approach seems to be "test after release" at customer's expense and frustration. The release of products with known deficiencies is not only costly but gives little credit to the knowledge of the professional user.

User costs in implementing new releases are unreasonable.

This is manifested in several ways:

- System check-out is tedious, frustrating, and expensive. We have learned that we cannot rely on IBM documentation or verbal assurance about the quality of a release. Experience at other installations is not helpful either, basically because of the scope of our activities. We have learned to question and test every aspect of the system before we expose our applications programmers to it in an operational environment. Beyond testing, a considerable amount of time is spent in transferring procedures and installation-oriented software over to the new system. This task is cumbersome and expensive, particularly considering the rapid rate of new releases.
- System generation is inefficient, error prone, and inconsistent from release to release. It seems ironic that first and second generation techniques (e. g., much card handling and human intervention between steps) are used to generate a so-called third generation system. Add to these ills the fact that PTFs are required to execute the system generation program itself, and the situation becomes almost incredible.
- The relationship between new OS releases and hardware engineering changes requires good planning and additional effort. Over the past ten months, over 750 hours of engineering changes have been installed on our 360 systems--time unavailable for productive work and certainly well beyond that which reasonable planning would call for. Until a few months ago, IBM insisted that installation of these changes be scheduled during periods which meant a significant loss to our scheduling flexibility. Costs in this case were hidden but certainly real.

Currently, our central computing facility is using release 11 with portions of releases 9, 12, and 13 jury-rigged into the system. Obviously, this is a rather fragile arrangement, but probably safer and more productive to the user than coping with the unknowns of new releases. A conservative estimate of the machine time used over the past eight months in system generation, check-out and maintenance is 250 hours. Manpower during the same period was probably five man years. One might argue that additional expertise is needed on our part, but we would match the quality of our system programmers against any other installation of similar size. The people and equipment resources that we have had to dedicate to these activities were at the expense of computer work vital to our national security.

After the debacle of release 9, we were assured that the pace on new releases of OS would be more deliberate and that new quality control procedures were being instituted. However, our experience with release 14 has been even more unsatisfactory. We have been building and testing a system based on this release since it became available, with unsatisfactory results. In this effort, we have followed the previous advice of our IBM representatives (which, on the advice given them within the corporation, they recently reversed) and avoided substitution of modules from earlier releases as we have done in the past. At the beginning of May, we learned through informal channels that IBM would provide a maintenance release which may solve some FORTRAN and other problems. We fail to understand why knowledge of IBM efforts to repair release 14 in a systematic way was withheld when it was clear that we, along with other installations, were spending time and scarce and costly resources to cure the ills of a doomed system.

We believe the following specific actions are necessary:

- a. That IBM take specific action to reduce costs of system generation and check-out perhaps by providing standard, pre-generated systems; reducing the complexity of the customer effort in system generation; and/or providing unlimited free machine time for system generation and system check-out (regardless of installation date).
- b. That IBM develop a policy on the periodicity of OS releases and software plans such that customers have sufficient time to absorb them in their planning.

c. That IBM provide quality control procedures that will clearly demonstrate through actual performance that IBM's promises regarding projected releases are valid. A specific example here would be a dramatic decrease in the number of PTFs.

d. That quality control procedures include provision for the customer (or user groups or other meaningful forums) to specify benchmark tests and to receive and validate results prior to release.

e. That IBM immediately announce that support to previous releases will continue until steps such as those described above are a regular part of new release policy and procedures.

f. That after quality control is instituted, IBM, as a second order of business, undertake serious efforts to overcome deficiencies in system capabilities as recognized by SHARE and GUIDE, whose recommendations should be seriously considered.

g. That IBM provide some means of incorporating engineering changes on-site in a way which will minimize the loss of system availability to the customer.